

Replace by
Akt 19

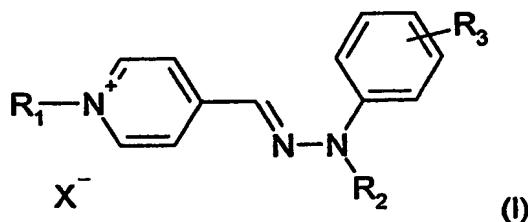
WO 03/060015

PCT/EP03/00068

- 121 -

What is claimed is:

1. A yellow cationic dye of formula (I)



wherein

R₁ and R₂ are each independently of the other a C₁-C₈alkyl radical or an unsubstituted or substituted benzyl radical, with the proviso that at least one of the substituents R₁ and R₂ is an unsubstituted or substituted benzyl radical,

R₃ is hydrogen, C₁-C₈alkyl, C₁-C₈alkoxy, cyanide or halide, preferably hydrogen, and

X⁻ is an anion,

with the proviso that, when R₁ is a benzyl radical and R₂ is a methyl radical,

R₃ is not hydrogen.

2. A yellow cationic dye of formula (I) according to claim 1,

wherein

R₁ is a methyl radical and

R₂ is a benzyl radical,

R₃ is hydrogen and

X⁻ is an anion.

3. A yellow cationic dye of formula (I) according to claim 1,

wherein

R₁ and R₂ are a benzyl radical,

R₃ is hydrogen and

X⁻ is an anion.

4. A process for the preparation of a yellow dye of formula (I) according to any one of claims

1 to 3 that comprises

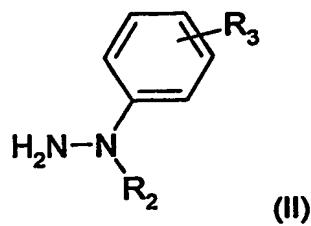
a) reacting a phenylhydrazine of formula (II)

REPLACE by
ART 19

WO 03/060015

PCT/EP03/00068

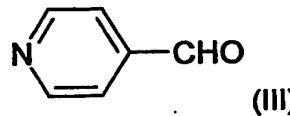
- 122 -



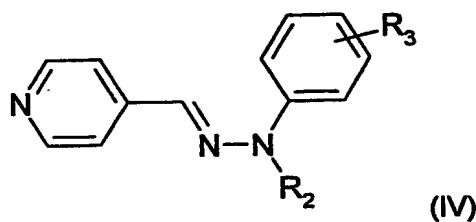
wherein

R₂ is hydrogen, a C₁-C₈alkyl radical or an unsubstituted or substituted benzyl radical and

R₃ is hydrogen, C₁-C₈alkyl, C₁-C₈alkoxy, cyanide or halide, preferably hydrogen, with a 4-pyridylaldehyde of formula

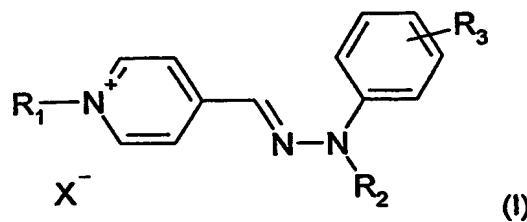


by the addition of an acid to form a hydrazone of formula



and

b) then reacting the latter compound of formula (IV) with an alkylating or benzylating agent to form a compound of formula (I)



wherein

R₁ is a C₁-C₈alkyl radical or an unsubstituted or substituted benzyl radical, at least one of R₁ and R₂ being an unsubstituted or substituted benzyl radical, with the proviso that, when R₁ is a benzyl radical and R₂ is a methyl radical, R₃ is not hydrogen.

5. A process according to claim 4 that comprises

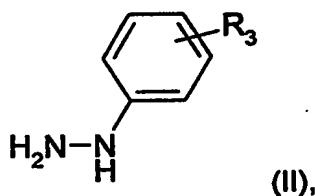
c) reacting a phenylhydrazine of formula (II)

REPLACE by
PCT/EP03/00068

WO 03/060015

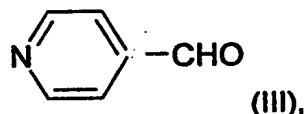
PCT/EP03/00068

- 123 -

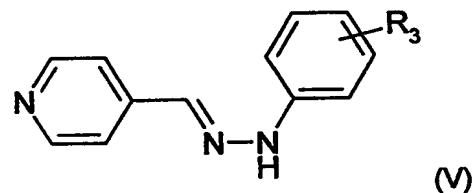


wherein

R₃ is hydrogen, C₁-C₈alkyl, C₁-C₈alkoxy, cyanide or halide, preferably hydrogen, with a 4-pyridylaldehyde of formula

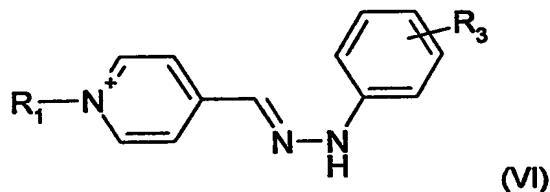


by the addition of an acid to form a hydrazone of formula



and

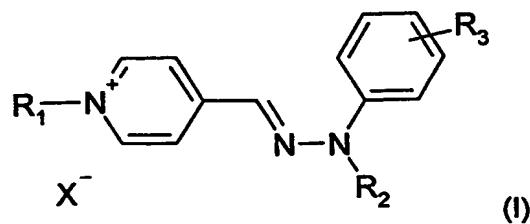
d) then reacting the latter compound of formula (V) with an alkylating or benzylating agent to form a quaternisation compound of formula (VI)



wherein

R₁ is a C₁-C₈alkyl radical or an unsubstituted or substituted benzyl radical, and

e) subsequently reacting, in the presence of a base, with an alkylating or benzylating agent to form a compound of formula (I)



wherein

R₂ is a C₁-C₈alkyl radical or an unsubstituted or substituted benzyl radical.

Rep/Hanby
AKT/19

WO 03/060015

PCT/EP03/00068

- 124 -

6. A composition comprising at least one yellow dye of formula (I) according to any one of claims 1 to 3, or prepared in accordance with a process according to claim 4 or claim 5.

7. A composition according to claim 6 comprising

- a) a compound of formula (I) according to claim 1,
- b) a further dye, or an oxidation dye precursor, and
- c) water and,
- d) optionally, further additives.

8. A composition according to claim 6 comprising

- j) a compound of formula (I) according to claim 1,
- k) a capped diazonium compound,
- l) a water-soluble coupling component and,
- m) optionally, further additives.

9. A method of dyeing organic material, especially human hair, that comprises bringing into contact with the organic material a yellow cationic dye of formula (I) according to any one of claims 1 to 3, or a yellow cationic dye of formula (I) prepared according to a process of claim 4 or 5, or a composition according to any one of claims 6 to 9, and, optionally, further dyes.

10. A method according to claim 9, wherein a yellow cationic dye of formula (I) according to any one of claims 1 to 3, or a yellow cationic dye of formula (I) prepared according to a process of claim 4 or 5, or a composition according to any one of claims 6 to 9, and, in addition,

in succession in any desired order, or simultaneously,

a capped diazonium compound and

a water-soluble coupling component,

are applied to the material to be dyed under conditions in which coupling does not take place initially, and then the capped diazonium compound disposed on the material is caused to react with the coupling component.

11. A method according to claim 9, wherein, first of all, an oxidation dye mixture that has been rendered alkaline comprising at least one developer substance and at least one coupler

REPLACE
ART 19

WO 03/060015

PCT/EP03/00068

- 125 -

substance as well as an oxidising agent and, optionally, a dye of formula (I) according to claim 1 and/or a further cationic dye, is applied to the hair, and then, after a period of action, a composition that has been rendered acidic comprising at least one acid and, optionally, a dye of formula (I) and/or a further cationic dye, is applied to the hair, at least one cationic direct dye being used in the method.

12. A method according to claim 9, wherein, first of all, an oxidation dye mixture that has been rendered alkaline comprising at least one developer substance and at least one coupler substance as well as an oxidising agent and, optionally, a dye of formula (I) according to claim 1 and/or a further cationic dye, is applied to the hair, and then, after a period of action, an oxidation dye mixture that has been rendered acidic comprising at least one developer substance and at least one coupler substance as well as an oxidising agent and, optionally, a dye of formula (I) and/or a further cationic dye, is applied to the hair, a cationic direct dye being used at least once in the method.